

We Claim:

1. A method for inserting asynchronous data into a synchronous data stream comprising:
  - receiving information including a first time value when said asynchronous data may be used;
  - determining a transfer interval for said asynchronous data;
  - inserting said asynchronous data into said synchronous data stream at a time prior to said first time value by an amount that is greater than or equal to said transfer interval.
2. The method of claim 1 wherein said step of determining a transfer interval further comprises:
  - determining the file size of said asynchronous data;
  - determining a data transfer rate for said asynchronous data; and
  - dividing said file size by said data transfer rate to calculate a duration.
3. The method of claim 2 wherein said step of determining a transfer interval further comprises:
  - determining the ratio of data stream bandwidth available for transfer of said asynchronous data; and
  - modifying said duration by multiplying said duration by the inverse of said ratio.
4. The method of claim 3 wherein said step of modifying said duration further comprises:
  - obtaining a connect time; and
  - adding said connect time to said duration.

5. A method for inserting first asynchronous data and second asynchronous data into a synchronous data stream comprising:

receiving information comprising a first time value when said first asynchronous data may be used and a second value time when said second asynchronous information may be used;

determining a first transfer interval for said first asynchronous data;

determining a second transfer interval for said second asynchronous data;

and

commencing insertion of said first asynchronous data into said synchronous stream at a time prior to said second time value by a period of time greater than or equal to the sum of said first transfer interval and said second transfer interval.

6. A method for inserting first asynchronous data and second asynchronous data into a synchronous television broadcast stream comprising:

receiving information comprising a first time value when said first asynchronous data may be used and a second value time when said second asynchronous information may be used;

determining a first transfer interval for said first asynchronous data;

determining a second transfer interval for said second asynchronous data;

and

commencing insertion of said first asynchronous data into said synchronous television broadcast stream at a time prior to said second time value by a period of time greater than or equal to the sum of said first transfer interval and said second transfer interval.

7. A method for inserting asynchronous data into a synchronous television broadcast stream comprising:

receiving information including a first time value when said asynchronous data may be used;

determining a transfer interval for said asynchronous data;

inserting said asynchronous data into said synchronous television broadcast stream at a time prior to said first time value by an amount that is greater than or equal to said transfer interval.

8. The method of claim 7 wherein said step of determining a transfer interval further comprises:

determining the file size of said asynchronous data;  
determining a data transfer rate for said asynchronous data; and  
dividing said file size by said data transfer rate to calculate a duration.

9. The method of claim 7 wherein said step of determining a transfer interval further comprises:

determining the ratio of data stream bandwidth available for transfer of said asynchronous data; and  
modifying said duration by multiplying said duration by the inverse of said ratio.

10. The method of claim 7 wherein said step of modifying said duration further comprises:

obtaining a connect time; and  
adding said connect time to said duration.

11. A system for inserting asynchronous data into a synchronous television broadcast stream comprising:

a database containing asynchronous data;  
an insertion controller containing a processor and program memory; and  
a software program operating on said insertion controller operable to determine a transfer interval for said asynchronous data and to commence insertion of said asynchronous data into said synchronous television broadcast stream at a time greater than or equal to the duration of said transfer interval prior to a time when said asynchronous data may be utilized.

12. The system of claim 11 wherein said software program further comprises:
  - a first software routine operable to determine a transfer rate based on total data stream bandwidth and bandwidth utilized by non-metadata transfers.
13. The system of claim 11 wherein said software program further comprises:
  - a second software routine operable to advance in time said commencement of said insertion of said asynchronous data by a period of time greater than or equal to a data access latency value.
14. A system for inserting asynchronous data into a synchronous television broadcast stream comprising:
  - a server containing asynchronous data;
  - an insertion controller; and
  - a software program operating on said server operable to determine a transfer interval for said asynchronous data and to commence insertion of said asynchronous data into said synchronous television broadcast stream at a time greater than or equal to the duration of said transfer interval prior to a time when said asynchronous data may be utilized.
15. The system of claim 14 wherein said software program further comprises:
  - a first software routine operable to determine a transfer rate based on total data stream bandwidth and bandwidth utilized by non-metadata transfers.
16. The system of claim 14 wherein said software program further comprises:
  - a second software routine operable to advance in time said commencement of said insertion of said asynchronous data by a period of time greater than or equal to a data access latency value.
17. A system for inserting asynchronous data into a synchronous television broadcast stream comprising:

a database containing first asynchronous data and second asynchronous data;

an insertion controller containing a processor and program memory; and

a software program operating in said insertion controller operable to determine a first transfer interval for said first asynchronous data and a second transfer interval for said second asynchronous data and to commence insertion of said first asynchronous data into said synchronous television broadcast stream at a time, greater than or equal to the duration of the sum of said first transfer interval and said second transfer interval, prior to a time when said second asynchronous data may be utilized.

18. The system of claim 17 wherein said synchronous data stream is an audio/video stream.
19. The system of claim 17 wherein said software program further comprises:
  - a first software routine operable to determine a first transfer rate and a second transfer rate based on total data stream bandwidth and bandwidth utilized by non-metadata transfers.
20. The system of claim 17 wherein said software program further comprises:
  - a second software routine operable to advance in time said commencement of said insertion of said first asynchronous data by a period of time greater than or equal to the sum of a first data access latency value for said first asynchronous data and a second data access latency value for said second asynchronous data.
21. A system for inserting asynchronous data into a synchronous television broadcast stream comprising:
  - a server containing first asynchronous data and second asynchronous data;
  - an insertion controller; and

22. The system of claim 21 wherein said software program further comprises:

23. The system of claim 21 wherein said software program further comprises:

19